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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/723,200	11/26/2003	William P. Collins	C-2605	9042

7590 09/15/2005

Stephen A. Schneeberger  
49 Arlington Road  
West Hartford, CT 06107

EXAMINER
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ALEJANDRO, RAYMOND

ART UNIT	PAPER NUMBER
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1745

DATE MAILED: 09/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/723,200

Applicant(s)

COLLINS ET AL.

Examiner

Raymond Alejandro

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>11/26/03</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Information Disclosure Statement*

1. The information disclosure statement (IDS) submitted on 11/26/03 was considered by the examiner.

### *Drawings*

2. The drawings were received on 11/26/03. These drawings are acceptable.

### *Specification*

3. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

### *Claim Objections*

4. Claims 1-18 are objected to because of the following informalities: all parenthesis brackets should be deleted or removed so as to better reflect the intended scope of the invention.

Appropriate correction is required.

5. Claims 1-18 are objected to because of the following informalities: all abbreviations should be deleted and their intended claim limitations should be presented in a non-abbreviated

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form (*e.g. ERD = energy recovery device and the likes*) so as to better reflect the intended scope of the invention. Appropriate correction is required.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

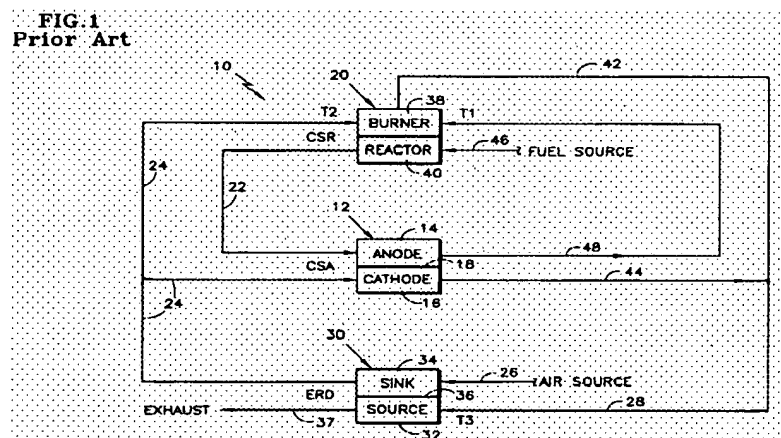
7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 1-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over applicant's admission of prior art (hereinafter referred to as "*the Prior Art*") in view of Grasso et al 6274259.

The present application is directed to a fuel cell power plant wherein the disclosed inventive concept comprises the specific additional energy recovery device for receiving gas/liquids.

As to claims 1, 4, 6, 9, 13-15 and 18:

In particular, applicants in their Prior Art admission has admitted that **Figure 1** below illustrates most the fuel cell components and features claimed in claim 1 such as the fuel cell stack, the fuel cell processing system including the combustion supported reaction means; the anode/cathode flows and fluid distribution arrangement; and the primary energy recovery device; the combined cathode exhaust and the combustion-supported reaction means and related fluid connections. Essentially, **Figure 1** below does not include additional energy recovery device of the gas/liquid type (See Figures 1 and Figure 3).



**[0013]** FIG. 1 is a simplified schematic diagram of a fuel cell power plant including a primary energy recovery device connected to a cell stack assembly and the combustion-supported reaction means of a fuel processing system in accordance with the prior art;

**[0015]** FIG. 3 is a simplified schematic diagram of a fuel cell power plant similar to that of FIG. 1, but additionally including a further energy recovery device of the gas/liquid type for controlling the dew point of the air supplied to the

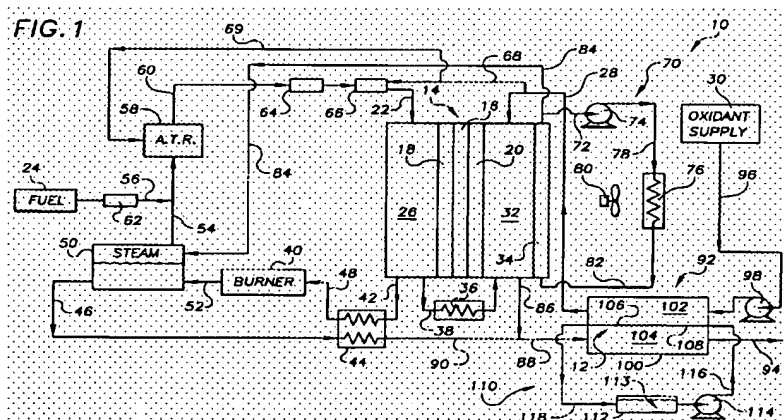
combustion-supported reaction means in accordance with one embodiment of the invention.

The Prior Art discloses all the claimed limitations with the exception of the additional energy recovery device of the gas/liquid type; the upstream location of the primary ERD; and the specific combustion reaction means.

As for claims 1, 13-14 and 16-17:

Grasso et al disclose a fine pore enthalpy exchange barrier (TITLE) for use with a fuel cell power plant and it includes a support matrix that defines pores and a liquid transfer medium that fills the pores creating a gas barrier (ABSTRACT/CLAIM 1). An inlet surface of the enthalpy exchange barrier is positioned in contact with a process oxidant inlet stream entering a fuel cell power plant (ABSTRACT/CLAIM 1), and an opposed exhaust surface of the barrier is positioned in contact with an exhaust stream exiting the plant so that water and heat exchange from the exhaust stream directly into the process oxidant inlet stream to heat and humidify the stream as it enters the plant (ABSTRACT/CLAIM 1). The liquid transfer medium may include water (ABSTRACT/CLAIM 1).

**Figure 1** below illustrates Grasso et al's fuel cell system including the enthalpy exchange barrier 12 in connection to oxidant supply 30.



As to claims 2-3:

As evident from **Figure 2** above, the enthalpy exchange barrier is upstream of the fuel cell system (See Figure 2).

Regarding claims 5 and 7-8:

Grasso et al disclose the use of a fuel processing component means including a burner that may be a conventional or preferably a catalytic burner using a steam generator (COL 6, lines 26-46); and/or an autothermal reformer (COL 6, lines 56-60).

With reference to claims 10-12:

Grasso et al disclose the use of the fine pore enthalpy exchange barrier (TITLE) including a support matrix that defines pores and a liquid transfer medium that fills the pores creating a gas barrier (ABSTRACT/CLAIM 1).

In view of the above, it would have been obvious to a skilled artisan at the time the invention was made to use the specific additional energy recovery device for receiving gas/liquids of Grasso et al in the fuel cell system of the Prior Art as Grasso et al teach that their additional energy recovery device assists in efficiently maintaining a self-sufficient water balance when operating at high ambient temperatures; in addition to that, it allows the fuel cell to achieve a self-sufficient water balance without a condensing heat exchanger while minimizing plant operating energy requirements.

With respect to the upstream location of the primary ERD, it has been held that re-arrangement, reversal or duplication of parts is obvious. Succinctly stated, fact that a claimed feature is structurally re-arranged, reversed or duplicated is not sufficient by itself to patentably distinguish over an otherwise old feature unless there are new or unexpected results as it is a matter of choice which a person of ordinary skill in the art would have found obvious absent

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persuasive evidence that the particular location of the claimed ERD was significant. In re Japikse 86 USPQ 70. In re Kuhle 188 USPQ 7. In re Gazda 104 USPQ 400. In re Harza 124 USPQ 378.

***(Refer to MPEP 2144.04 [R-1] Legal Precedent as Source of Supporting Rationale: VI.***

***Reversal, Duplication, OR Rearrangement of Parts).***

As far as the specific combustion reaction means, those of average knowledge in the pertinent art, at the time the invention was made, would have found obvious to employ any of the specific combustion reaction means of Grasso et al in the fuel cell system of the Prior Art because Grasso et al teach that such combustions reaction means are part of the fuel processing components for processing hydrocarbon fuels into reducing fluids appropriate for providing fuel to an anode electrode of a fuel cell. Thus, the specific combustion reaction means support the fuel conversion process, thereby, it assists in chemically transforming raw fuel into usable fuel.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Raymond Alejandro whose telephone number is (571) 272-1282. The examiner can normally be reached on Monday-Thursday (8:00 am - 6:30 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Raymond Alejandro  
Primary Examiner  
Art Unit 1745



**RAYMOND ALEJANDRO**  
**PRIMARY EXAMINER**